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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,348	09/30/2003	Atsushi Fukui	SNY-040	3442

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EXAMINER	
MARTIN, ANGELA J	
ART UNIT	**PAPER NUMBER**
1745	

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/673,348	FUKUI ET AL.	
	Examiner	Art Unit	
	Angela J. Martin	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The prior art references filed September 30, 2003 fails to comply with 37 CFR 1.98(a)(1), which requires the following: (1) a list of all patents, publications, applications, or other information submitted for consideration by the Office; (2) U.S. patents and U.S. patent application publications listed in a section separately from citations of other documents; (3) the application number of the application in which the information disclosure statement is being submitted on each page of the list; (4) a column that provides a blank space next to each document to be considered, for the examiner's initials; and (5) a heading that clearly indicates that the list is an information disclosure statement. The prior art references have been placed in the application file, but the information referred to therein has not been considered.

Double Patenting

2. Claims 1-16 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 4, 9-11 of copending Application No. 10/329,571. Although the conflicting claims are not identical, they are not patentably distinct from each other because they both teach a negative electrode for a lithium secondary battery wherein the negative electrode is silicon and a polyimide binder on a copper foil current collector, wherein the surface roughness of the collector is at least 0.2 micrometers.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

3. Claims 1-16 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 3, 4, 6, 7, 12, 19, 21—28, 35, 40, 64, 66, 68, 69, 71, 73, 74 of copending Application No. 10/363,039. Although the conflicting claims are not identical, they are not patentably distinct from each other because they both teach a negative electrode for a lithium secondary battery wherein the negative electrode is silicon and a polyimide binder on a copper foil current collector, wherein the surface roughness of the collector is at least 0.2 micrometers.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Kusumoto et al., U.S. Pat. Application Pub. 2003/0148185 A1.

The applied reference has a common assignee and inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it

constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Rejection of claims 1-10 drawn to a negative electrode; claims 11-14 drawn to a method of making the negative electrode; claims 15 and 16 drawn to a lithium secondary battery.

Kusumoto et al., teach a negative electrode for a lithium secondary battery prepared by forming an active material layer of silicon (sect. 0017) and a binder on a current collector comprising an electrically conductive metal foil (sect. 0023), and sintering the layer on the collector under a non-oxidizing atmosphere, wherein the active material particles are primary particles having a mean diameter of not greater than 10 micrometer, the particles are dispersed uniformly in the active material layer, and the particles and binder are uniformly mixed and distributed (sect. 0032). It teaches the active material is silicon (sect. 0017). It teaches a surface roughness of the collector is at least 0.2 micrometer (sect. 0017). It teaches the current collector is a copper foil (sect. 0022, 0023). It teaches the current collector is an electrolytic copper foil (sect. 0023). It teaches the binder remains after sintering (sect. 0033). It teaches the binder is polyimide (sect. 0033). It teaches an electrically conductive powder is mixed in the active material layer (sect. 0036). It teaches a method for preparing a negative electrode for a lithium secondary battery comprising preparing a slurry comprising active

material in a binder solution, wherein the active material is silicon having an average diameter of primary particles of less than 1 micrometer and coating the slurry on a current collector comprising metal foil to form active material layer, and sintering layer on collector under a non-oxidizing atmosphere (sect. 0039). It teaches the binder remains after heat treatment (sect. 0040). It teaches the active material layer is press rolled together with the collector before sintering (sect. 0040, 0041). It teaches a lithium secondary battery comprising a negative electrode, a positive electrode, and a nonaqueous electrolyte (sect. 0042).

Thus, the claims are anticipated.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Mori, JP 2000-012088 (abstract), teaches a nonaqueous secondary battery comprising a negative electrode, which includes silicon, and the negative current collector has an average roughness of 0.03-1.0 micrometer. Akagi et al., JP 11-339777, teach a secondary battery comprising a negative electrode, which includes silicon. Fukui et al., U.S. Pat. Application Pub. 2003/0235762 A1, teaches a negative electrode for a lithium secondary battery comprising a negative electrode, which includes silicon.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela J. Martin whose telephone number is 571-272-

1288. The examiner can normally be reached on Monday-Friday from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AJM

PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER